

Statement of Work

Support for Market-Based Air Emissions Control Programs

I. SCOPE

The purpose of this procurement is to provide technical and analytical support primarily to the U.S. Environmental Protection Agency (EPA) Clean Air Markets Division within the Office of Atmospheric Programs. This contract requires the contractor to perform work in the following task areas:

- A - Environmental, Evaluative, Economic, Statistical, and Financial Analyses and Support
- B - Analysis of Greenhouse Gas and Criteria Pollutant Emissions
- C - Analyses of Strategies for Limiting Global Atmospheric Changes
- D - Support for Market Mechanisms in Developing Countries and Economies in Transition
- E - Information Technology (IT) Support and Data System Operations
- F - Communication, Outreach, Guidance, and Regulatory Program Support
- G - Technical and Engineering Analyses

The Contracting Officer will issue work assignments for all work required under this contract in accordance with the terms and conditions of the contract. The contractor shall submit all work products in draft for review and approval by appropriate Government personnel prior to preparation and issuance in final, in accordance with the terms and conditions of the contract. The Government will make all final determinations and decisions after a critical and close review of the contractor's work product and reasons/basis for the contractor's recommendations. The contractor shall not represent itself as EPA to outside parties. To maintain public trust, the contractor shall identify themselves as agency contractors, at the onset of any communications with outside parties.

II BACKGROUND

EPA's Clean Air Markets Division (CAMD) in the Office of Atmospheric Programs (OAP) within the Office of Air and Radiation has the primary responsibility for developing and implementing the Acid Rain Program, as authorized under Title IV of the Clean Air Act Amendments of November 15, 1990 (CAAA). The contractor will be required to perform a wide range of analyses required under Titles I, IV, VIII, and IX of the CAAA. For example, sections

812 and 901(j) of the CAAA require benefit/cost analyses that focus on the public health, economy, and environment of the United States. In addition, analyses may be necessary for other rulemaking activities related to the development, operation and evaluation of a range of market-based programs or any analyses related to power generation and the pollutants associated with it including sulfur dioxide (SO₂), nitrogen oxides (NO_x), and mercury (Hg). Analysis may also be required to meet the support for U.S. international agreements, including the 1991 U.S.– Canada Air Quality Agreement.

EPA is responsible for quantifying and reporting United States greenhouse gas emissions and sinks to the United Nations under the Framework Convention for Climate Change. Support characterizing and estimating emissions may be needed from the contractor. Analytical support, including economic analyses, for both domestic and international greenhouse gas mitigation strategies will be required with an emphasis on using market-based mechanisms. The contractor will also need to provide analytical support to help build capacity for market mechanisms in developing countries and countries with economies in transition.

The contractor will be required to perform systems design, development, installation, operation, administration, and record keeping in support of various programs. The contractor shall also provide support for outreach and communications. Contractor support is intended to provide the Agency with the flexibility to carry out other mandates and future initiatives related to the Statement of Work. Analyses may also be required for evaluating other future market-based environmental programs.

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III. TASK DESCRIPTIONS

A. Environmental, Evaluative, Economic, Statistical, and Financial Analyses and Support

The contractor shall:

- (a) Perform atmospheric, environmental and ecological modeling, provide analyses of data including the development of graphical or other pictorial (*e.g.*, maps) materials, and draw conclusions. Analyses may also involve the development of various projections and forecasts of emissions for use in modeling. Ecological modeling shall include water and watershed modeling and data analysis. Models may be altered to meet CAMD needs. Input data for modeling deposition shall be calculated or acquired.
- (b) Perform air quality modeling. The scope includes: (1) Preparing emissions inputs and processing data for utility and non-utility sources from EPA and other sources for air modeling assessment; (2) Collecting ambient measurement data, processing, and assimilation for assessment and air model evaluation; (3) Developing air

models and providing testing, evaluation, and options for related pre-and-post processing; (4) Developing graphics, including animated simulations and static graphics for air models; (5) Collecting, compiling, and analyzing data on emissions, air quality modeling, and monitoring. Scope also includes quality assurance, report writing, and peer review support.

- (c) Perform cost/benefit or co-benefit analyses including the quantification and valuation of benefits using techniques such as contingent valuation, cost-of-illness, risk analysis, estimating dose-response and concentration-response functions. Cost/benefit analyses may also include incidental benefits, such as incidental pollutant removals. Such analyses may be necessary for existing programs as well as for scenarios involving potential future emissions reductions of NO_x, SO₂, mercury, and their byproducts.
- (d) Perform cost-effectiveness analyses of market-based programs and proposals relative to other regulatory approaches and identify alternative measures to increase program effectiveness.
- (e) Provide continuing analysis of Title IV Acid Rain Program, extending analysis to include NO_x, ozone, particulate matter (PM), and multi-pollutant reduction programs.
- (f) Perform analysis of U.S. - Canada trans-boundary NO_x in support of the current ozone annex to the U.S. - Canada Air Quality Agreement.
- (g) Perform field surveys, ambient and environmental sampling, and other environmental research to determine the effectiveness of market-based and other air pollution control programs. Scope includes dry and wet atmospheric deposition and ecological (*e.g.*, freshwater and terrestrial) research, monitoring, and assessment.
- (h) Develop and conduct written and oral surveys in compliance with program requirements. This includes the development of the survey plan, design and testing of questionnaires, preparation of supporting materials for the OMB ICR (Information Collection Review) process, collection and analysis of the results, and reporting on the findings.
- (i) Design statistical procedures for the verification and analysis of allowance allocations and for annual reconciliation of emissions/allowances for program compliance.
- (j) Perform statistical analyses on large emissions monitoring or other environmental monitoring databases for regulatory development, evaluation, compliance, and

quality assurance. This may require designing sampling procedures, screening data to determine applicable statistical techniques, and applying descriptive and inferential statistical analysis, including parametric and non-parametric tests, regression, correlation, and times series analysis, and other multi-variate methods. Results may require development and presentation in hard copy format, in software files (*e.g.*, SAS or spreadsheet files), and in interactive computer displays.

- (k) Perform studies on international market-based air pollution control programs including possible case studies and comparisons of programs.
- (l) Perform cost-effectiveness analyses, economic analyses, statistical analyses, and regulatory flexibility analyses on emission trading issues.
- (m) Perform regulatory impact analyses (RIAs), small business impact and unfunded mandate analyses, and information collection requests (ICRs), for proposed multi-pollutant or emissions trading regulations.
- (n) Operate and develop computer-based mathematical models and apply operations research techniques to evaluate the environmental, regulatory, and economic impact of the market-based pollution control regulations and proposals. This may include use of the Monte Carlo simulation, optimization models, multi-objective programming, and decision analysis techniques as well as the tailoring of existing economic models.
- (o) Analyze economic and environmental impacts of inter-pollutant and international trading scenarios, including case studies, and economic and scientific analysis.
- (p) Assess implications of potential government policies on the regulated community.
- (q) Assess the performance of the Acid Rain Program and other market-based pollution control programs, including the Ozone Transport NO_x Budget and Western Regional Haze Programs, and make recommendations for overall program implementation, streamlining, and improvements.
- (r) Assess the impacts of deregulation and competition in the electric power generation industry on emissions levels and compliance strategies.
- (s) Assess the impacts of legislative or regulatory changes affecting the utility and other industrial sectors on the implementation and performance of the Acid Rain Program and multi-pollutant programs or proposals. Such evaluations may include the changing roles of non-utility generators (NUGs), Independent Power Producers (IPPs), and other boiler operators. Assess the impacts of restructuring of the electric power generation industry.

- (t) Perform economic analysis using economic models. The contractor shall process the ability to run and conduct analyses using the outputs of general equilibria models, bottom-up technology models, and macro-economic models. The contractor shall have national and international economic models available for use. In addition to the analysis of the economic impacts of environmental policies, the contractor shall develop, update and model parameters using econometric techniques. The contractor shall also modify modeling code to incorporate new features, perform quick turn-around modeling exercises, develop spreadsheets to enhance model functionality, and develop or periodically re-calibrate model baselines.
- (u) Assess and synthesize technical information pertinent to evaluation and benefit studies of market-based programs.

B. Analysis of Greenhouse Gas and Criteria Pollutant Emissions

EPA is responsible for quantifying and reporting United States greenhouse gas emissions and sinks under the Framework Convention for Climate Change. These assessments require information on emissions sources and sinks and estimates of potential changes in human activities that cause and influence emissions. The contractor shall:

- (a) Identify and characterize emissions sources in all sectors.
- (b) Identify how human-made and natural sources and sink categories will change over time in different geographic regions.
- (c) Provide assistance and support to countries conducting national inventories and plans for reducing greenhouse gas emissions, ozone, particulate matter (PM), volatile organic compounds (VOCs), and other criteria air pollutants.
- (d) Conduct or coordinate research, experiments, demonstrations, surveys, and studies into greenhouse gas emissions sources and sinks.
- (e) Develop methodologies to quantify greenhouse gas and criteria pollutant (SO₂, NO_x, PM) emissions for use in the U.S. and internationally.
- (f) Develop and analyze strategies, systems, and methodologies for monitoring and verifying emissions and emissions reductions from projects in all sectors.
- (g) Develop quality assurance and quality control procedures for emissions inventories.

- (h) Conduct studies comparing source level “bottom up” inventories with sectoral or national “top down” inventories.

C. Analyses of Strategies for Limiting Global Atmospheric Changes

The contractor shall analyze:

- (a) Economic incentives for reducing greenhouse gas and criteria pollutant emissions.
- (b) Economic and cost analyses of technical options for reducing emissions and enhancing carbon removal from sinks.
- (c) Trade and other macro-economics effects of reducing emissions, including assessments of benefits or tradeoffs across economic sectors and between nations, and the possible effects on competitiveness and export markets, employment, income levels, distribution of income, and other social and economic factors.
- (d) Voluntary initiatives to reduce greenhouse gas and criteria pollutant emissions.
- (e) Integrated analysis including multi-sector analysis and multi-disciplinary analysis (e.g., ecological, economic, social).
- (f) Ancillary benefits of reducing emissions, including environmental, social, and economic development benefits.
- (g) Reducing emissions through the use of energy efficient technologies, such as hydro-electric power, geothermal energy, wind, biomass, photovoltaic and other renewable energy technologies, nuclear, switching from coal to natural gas, reducing pipeline gas leaks, recovering methane from landfills and coal mines, and modifying combustion techniques.
- (h) Reducing emissions of CFCs, halons, and other greenhouse gases. Assessments of options may include analysis of markets for these techniques and the cost and conditions necessary to achieve significant market penetration.
- (i) Enhancing carbon removal from sinks through afforestation, reforestation, forest protection, recycling wood products, soil improvement, and sustainable agriculture.
- (j) The requirements and optimal structure of a greenhouse gases reporting program with the ability to register greenhouse gas emission reductions from participating facilities.

D. Support for Market Mechanisms in Developing Countries and Economies in Transition

Market mechanisms can help developing countries and economies in transition (EITs) provide capital for investment in emission reductions while providing the developed world with lower cost greenhouse gas emissions reductions. In some cases, designing cap and trade programs for conventional pollutants can help these countries address local health problems while building capacity and experience for greenhouse gas market mechanisms. The contractor shall:

- (a) Develop baseline, monitoring, verification and methodologies for project-level emissions offsets.
- (b) Develop an emissions and allowance tracking system suitable for use by other countries with trading programs.
- (c) Use pilot programs to test and promote cap and trade and other market mechanisms in developing countries and EIT's.
- (d) Conduct economic analyses of the benefits use of market mechanisms including cap and trade programs and project-level trading activities.
- (e) Develop handbooks, tracking systems, training, and other tools to build capacity for market mechanisms.
- (f) Conduct economic analysis and emissions projections for developing countries to assess the country's commitment to reduce greenhouse gas emissions.

E. Information Technology (IT) Support and Data System Operations

This task area includes development, maintenance, operation and documentation of automated and manual systems for receipt, inventory, checking, transfer, and archiving of emissions, allowance transaction, and other program data. Most of this data is submitted electronically to EPA by the regulated community (*e.g.*, utility and industrial electric power generators.) Some systems will need to be publicly accessible in a web environment. Some data files will need to be shared (primarily on a read-only basis) with State program partners and/or regulated industry. The contractor shall:

- (a) Perform database and system administration in both mainframe and server environments. Administration includes making updates to database tables, adding new database tables, troubleshooting problems with servers, and performing back-

ups of the data contained on servers.

- (b) Provide operating system support for Sun Solaris OS, and Microsoft NT, and installation, configuration, and maintenance of applications running on these operating systems, including Cold Fusion, SAS, ESRI Products (e.g., ArcINFO, ArcIMS, ArcSDE, ArcView), Oracle, and Samba.
- (c) Monitor the functioning of the tracking and information systems, identify problems, recommend solutions, and develop proposals for continually improving system performance. This may require periodically surveying system users and keeping constantly abreast of the latest developments in database software and technology and in decision support systems.
- (d) Provide support for installing hardware and loading necessary applications on a server.

F. Communication, Outreach, Guidance, and Regulatory Program Support

Communication, outreach, guidance, and regulatory program support may be required for the Acid Rain Program as well as other market-based environmental programs. The contractor shall provide communication support, including web development and convening services (e.g., meeting design, facilitation, follow-up), for outreach and guidance to the affected community in the implementation of existing and new programs or regulations. These programs may need communication assistance with both technical and general implementation issues. Support will be needed for outreach to audiences outside the regulated industry, including the general public. In addition, convening services may include meeting/facilitation support for branch and/or Division retreats, project teams, and cross-organization groups within the Office of Atmospheric Programs. The contractor shall:

- (a) Provide support in the development of communication plans, including a communications strategy to improve understanding among stakeholders and the general public of clean air market programs, results, and applicability.
- (b) Establish communication and information-transfer networks to disseminate information including the operation of an established hotline, clearinghouse, dockets or electronic bulletin boards that could provide technical support services.
- (c) Develop training and presentation materials on program requirements and associated tools, e.g., Monitoring Data Checking (MDC) software for Agency staff, the regulated community, State agencies, environmental groups, and other critical public parties.

- (d) Plan and conduct workshops for the affected industry, EPA Regional offices and State environmental departments on topics such as permit writing, program requirements, and computer systems to be used for auditing, reporting, and quality assurance activities.
- (e) Attend public hearings, advisory meetings, and CEMS /Data Acquisition and Handling Systems (DAHS) vendor meetings related to program implementation.
- (f) Provide support functions for meetings, conferences, hearings and seminars with EPA Regions, States, tribes, other countries, the regulated community, and other interested groups. For example, the contractor may secure facilities; prepare agendas; take notes; develop presentations; provide meeting design and facilitation services; supply, set-up, and run audio/video equipment; demonstrate software applications; conduct registration; copy and distribute handouts; and prepare materials for posting on EPA web sites.
- (g) Provide convening/consultative process services to assist organizations and teams within and/or involving the Clean Air Markets Program conduct successful meetings and find ways to improve program planning, communications, and performance. The contractor shall facilitate meetings or consultative process by assisting participants in articulating their interests, identifying areas of agreement, and developing consensus solutions to the problems that divide them. Support may include pre-meeting participant surveys, meeting design and agendas, logistical support, facilitation, communication with participants between meetings, meeting summaries, and follow-up.
- (h) Design and prepare program information materials including fact sheets, brochures, booklets, progress reports, and guidance documents (written, audio-visual, and electronic materials).
- (i) Prepare graphics for and draft presentations and reports.
- (j) Provide graphic, editorial and report drafting support for technical documents. Such support shall include technical writing and communication of technical, scientific, and engineering information.
- (k) Develop record keeping processes or systems to manage the receipt of large volumes of electronic and hard copy material such as permit applications, ambient and deposition monitoring submissions, source monitoring submissions, certification and recertification applications, and forms, and to process them quickly and efficiently (*i.e.*, using a processing center or interactive formats).
- (l) Consolidate, organize, and research answers to public comments received on

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- (m) Develop, categorize, and organize materials for rulemaking dockets and regional permit records dockets.
- (n) Collect data in support of Freedom of Information Act requests and federal enforcement actions.
- (o) Provide general web support, including design and creation of new HTML/web pages, maps graphics, spiders and written text.

G. Technical and Engineering Analyses

The contractor shall perform the following technical and engineering analyses:

- (a) Technical reviews of facility and environmental data submitted to the Acid Rain Program, NO_x Budget Programs, and future multi-state trading programs by comparing submitted data with data contained in other available databases.
- (b) Examine literature regarding existing technologies in industrial processes that emit pollutants such as SO₂, NO_x, Hg, other air toxics, VOCs, and particulate matter and CO₂. Evaluate appropriate emission control or reduction technologies and possible future innovations.
- (c) Assess the impact of the Clean Air Act Amendments of 1990 on the availability, costs, and performance of energy savings and pollution prevention technologies. Review emerging technological, regulatory, and marketing innovations related to energy efficiency and renewable energy technologies.
- (d) Analyze alternative procedures in lieu of continuous emission monitors (CEMs) for monitoring emissions from affected units, and/or procedures for substituting missing data using parametric and statistical approaches.
- (e) Perform field tests and studies: (1) to assess the appropriateness and effectiveness of air pollution control systems in limiting SO₂, NO_x, Hg, CO₂, VOC, and other emissions; (2) to assess the appropriateness and effectiveness of continuous emission monitoring systems or other emissions quantification techniques for measuring or quantifying parameters such as SO₂, flow, NO_x, diluent gas, Hg, CO₂, and opacity; and (3) to examine new reference methods or systems for use with continuous emission monitoring.
- (f) Perform engineering and costing studies and analyze performance test data on the

emission reductions of various pollutants, such as NO_x and Hg, that can be achieved on electric power generation and industrial boilers firing various types of coal in the U.S. and overseas. These studies and analyses shall include several types of coal-fired boilers. Analyze possible boiler operating parameter impacts of various controls.

- (g) Perform engineering and costing studies and analyze performance test data on the mission reductions that can be achieved on various pollutants, such as SO₂, NO_x, and Hg.
- (h) Assess control technology for all types of boiler and turbine operations. In addition, evaluate the performance and control of both electric power generation and industrial boilers required to meet the New Source Performance Standards (NSPS), State Implementation Plans (SIPs), CAA Title IV and Section 126 requirements, and multi-pollutant proposals or requirements.
- (i) Evaluate utility dispatching practices and electric reliability issues.
- (j) Prepare and implement written, automated, and multimedia training tools for electronic and field audit training activities.
- (k) Perform electronic, QA, and field audits of submitted emissions information and provide technical data in support of EPA/State regional field offices.

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